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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/823,187 | 04/13/2004 | Jeffrey R. Thomas | 12364.01/YOD ITWO:0022--1 | 4047 |
| 7590 | 04/06/2006 | | EXAMINER | |
| Patrick S. Yoder FLETCHER YODER P.O. BOX 692289 Houston, TX 77269-2289 | | | LEUNG, PHILIP H | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 3742 | |

DATE MAILED: 04/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/823,187

Applicant(s)

THOMAS ET AL.

Examiner

Philip H. Leung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1-9-2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 13-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 13-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. As set forth in the previous Office action, the drawings filed 4-13-2004 are objected to because the handwritings in Figure 8 needs to be removed. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawing sheet filed 1-9-2006 is not acceptable because it is not labelled “Replacement Sheet”. The same should be refilled with proper labeling.

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3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 13 and 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Strickland, Jr. (US 2,457,843), in view of Miller (US 3,022,368) and Moesta (US 1,548,204) (all previously cited).

Strickland, Jr. shows a flexible an induction heating cable 5 configured to wrap around a tube 2 for heating the tube (see Figure 1 and col. 1, lines 46-51). It does not show a first fluid connector disposed transverse to the first electrical connector and in fluid communication with the flexible tube. Miller shows an induction heating device, comprising: a flexible tube 35; a conductor 42 disposed within the flexible tube; an electrical connector 50 disposed at a first end of the flexible tube and electrically coupled to a first end of the conductor; and a fluid connector (53, 55, 56, 128) disposed adjacent to the electrical connector to enable cooling fluid to flow into the flexible tube (see Figures 1-14 and col. 2, line 8 – col. 5, line 53). Moesta shows that it is notoriously old and well known in the art of electric heating devices supplied with a flexible power cable 15 that includes a flexible conductor 11 connected to terminals 10 and 12 and fluid connectors 14 for cooling fluid to cool the conductors 11. The fluid T-connectors 14 are separate from the electrical terminals 10 and 12 and bypass the fluid from the connector terminals (see Figures 1-3 and page 1, line 90 – page 2, line 44). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Strickland, Jr. to use any known fluid connector orientation including fluid connectors separate from the electrical

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connectors to allow the cooling fluid to bypass the electrical terminal connectors for a safer device, in view of the combined teaching of Miller and Moesta.

5. Claims 1-5, 9, 14 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Strickland, Jr. (US 2,457,843), in view of Miller (US 3,022,368) and Moesta (US 1,548,204), as applied to claims 13 and 16-21 above, and further in view of Haldeman (US 5,461,215) (previously cited).

Strickland, Jr. combined with Miller and Moesta shows a flexible fluid-cooled induction heating cable including every feature as claimed except for use of litz wire as the conductor for the induction cable. Haldeman shows a flexible fluid-cooled induction heating cable comprising: a litz wire 10 disposed within a hollow interior of the fluid-cooled induction heating cable 1; a first and a second electrical connector 2, each electrical connector being electrically coupled to the litz wire and a first and a second fluid connector 22 (see Figures 4-9 and col. 4, line 33 – col. 5, line 20). Therefore, therefore, Haldeman shows the use of litz wires as induction cable conductors is well known in the art of induction heating for its low loss characteristics. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Strickland, Jr. combined with Miller and Moesta to use litz wires as the induction heating cable conductors for better efficiency, in view of the teaching of Haldeman. In regard to claims 5 and 9, pipes 17 and 20 in Moesta are the claimed jumper hose.

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Strickland, Jr. (US 2,457,843), in view of Miller (US 3,022,368) and Moesta (US 1,548,204) and Haldeman

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(US 5,461,215), as applied to Claims 1-5, 9, 14 and 22-24 above, and further in view of Emerson et al (US 3,674,971) (previously cited).

Strickland, Jr. combined with Miller, Moesta and Haldeman shows a flexible fluid-cooled induction heating cable including every feature as claimed except for the explicit showing that the fluid connector is a quick-disconnect type. Emerson shows an induction heating coil 10 with cooling manifold 14 connected to the coil with hoses 17 and 18 with quick disconnect fittings 20 (see Figures 1 and 2 and col. 1, lines 50-72). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Strickland, Jr. combined with Miller, Moesta and Haldeman to use quick disconnect fluid connectors so that it can be quickly and easily connected or removed for a faster operation, in view of the teaching of Emerson.

7. Claims 7, 8 and 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Strickland, Jr. (US 2,457,843), in view of Miller (US 3,022,368) and Moesta (US 1,548,204), as applied to claims 13 and 16-21 above, and further in view of Emerson et al (US 3,674,971).

Strickland, Jr. combined with Miller and Moesta shows a flexible fluid-cooled induction heating cable including every feature as claimed except for the explicit showing that the fluid connector is a quick-disconnect type. Emerson shows an induction heating coil 10 with cooling manifold 14 connected to the coil with hoses 17 and 18 with quick disconnect fittings 20 (see Figures 1 and 2 and col. 1, lines 50-72). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Strickland, Jr. combined with Miller and Moesta to use quick disconnect fluid connectors so that it can be quickly and easily

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connected or removed for a faster operation, in view of the teaching of Emerson. In regard to claim 8, again, as pointed out above, the use of litz wires as induction cable conductors is well known in the art of induction heating for its low loss characteristics.

8. Applicant's arguments filed 1-9-2006 have been fully considered but they are moot in view of the new grounds of rejection. Furthermore, the limitation "configured to be wrapped around" is only functional, similar to "capable of wrapping" and does not positively provide a concrete structure for the cable. That is, the cable is not required in a "wrapped" configuration. More importantly, wrapping an induction cable around a tube shaped workpiece for heating the same is notoriously old and well known as shown by Strickland, Jr.. It is pointed out that the applicant has not provided any argument in regard to the rejection of claim 7 based on this reference made in the previous Office action for the similar "wrapping" feature as now claimed.

9. Applicant's amendment necessitated the rearrangement of grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip H Leung whose telephone number is (571) 272-4782.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on (571) 472-4777. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Philip H Leung
Primary Examiner
Art Unit 3742

P.Leung/pl
4-2-2006